Amendment to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-20 (canceled).

21. (New) An apparatus, comprising:

a transmitter configured to send a transmitter signal associated with a frequency;

a receiver associated with the frequency;

an antenna coupled to the transmitter and the receiver; and

a signal cancellation circuit coupled to the transmitter, the receiver and the antenna, the signal cancellation circuit configured to phase shift by substantially 180 degrees a first portion of the transmitter signal that does not include a reception signal to produce a phase-shifted signal, the signal cancellation circuit configured to combine the phase-shifted signal with a second portion of the transmitter signal to produce a combined signal, the second portion of the transmitter signal being associated with a reflection of a third portion of the transmitter signal from the antenna, the first portion, the second portion and the third portion of the transmitter signal being different from each other, and where the signal cancellation circuit is further configured to execute a training sequence including generating a detector signal based on an amplitude of the training sequence of the transmitter signal, modifying a first amplitude of the first portion of the transmitter signal based on the detector signal, and modifying a second amplitude of the first portion of the transmitter signal such that the second amplitude of the first portion of the transmitter signal is substantially equal to an amplitude of the second portion of the transmitter signal.

22. (New) The apparatus of claim 21, wherein the signal cancellation circuit comprises:

a first coupler coupled to the transmitter and the antenna, the first coupler configured to receive the first portion of the transmitter signal;

a phase shifter coupled to the first coupler, the phase shifter configured to phase shift the phase of the transmitter signal by substantially 180 degrees to produce the phase-shifted signal; and

a second coupler coupled to the phase shifter and the antenna, the second coupler configured to combine the phase-shifted signal and the second portion of the transmitter signal to produce the combined signal, the second coupler configured to send the combined signal to the receiver and coupled to the antenna.

23. (New) The apparatus of claim 21, wherein a magnitude of the first portion of the transmitter signal is substantially equal to a magnitude of the second portion of the transmitter signal.

24. (New) The apparatus of claim 21, wherein the signal cancellation circuit comprises:

a first coupler coupled to the transmitter and the antenna, the first coupler configured to receive the first portion of the transmitter signal;

a variable attenuator coupled to the first coupler, the variable attenuator configured to modify a magnitude of the transmitter signal to produce a first modified signal;

a phase shifter coupled to the first coupler, the phase shifter configured to phase shift a phase by substantially 180 degrees of the first modified signal to produce a second modified signal; and

a second coupler coupled to the phase shifter, the receiver and the antenna, the second coupler configured to combine the second modified signal and the second portion of the transmitter signal to produce the combined signal, the second coupler configured to provide the combined signal to the receiver.

25. (New) The apparatus of claim 21, further comprising a frequency source coupled to the transmitter and the receiver, the frequency source configured to provide a carrier signal having the frequency to the transmitter and the receiver.

26. (New) The apparatus of claim 21, wherein the signal cancellation circuit comprises:

a first coupler coupled to the transmitter and the antenna;

a second coupler coupled to the antenna; and

a circulator coupled to the first coupler, the second coupler, and the antenna, the circulator configured to forward the third portion of the transmitter signal from the first coupler to the antenna, the circulator configured to forward the second portion of the transmitter signal from the antenna to the second coupler.

27. (New) The apparatus of claim 24, wherein the circuit comprises a detector and a controller, the controller being coupled to the first coupler, the second coupler and the detector, the detector being configurable based on calibration data and operable to generate the detector signal, the controller configured to modify the phase of the transmitter signal based on the calibration data.

28. (New) The apparatus of claim 24, wherein the circuit comprises a detector and a controller, the controller being coupled to the first coupler, the second coupler and the detector, the detector being configurable based on calibration data while the variable attenuator is set to a maximum level, and the detector being operable to generate the detector signal.

29. (New) The apparatus of claim 22, further comprising a homodyne transceiver comprising the receiver and a transmitter, the homodyne transceiver being associated with the frequency and coupled to the antenna via the first coupler.

30. (New) A method, comprising:

phase shifting a first portion of a transmitter signal to produce a phase-shifted signal, the transmitter signal being associated with a frequency;

generating a detector signal based on an amplitude of a training sequence of the transmitter signal;

modifying a first amplitude of the first portion of the transmitter signal based on the detector signal;

combining the phase-shifted signal with a second portion of the transmitter signal to produce a reduced signal, the second portion of the transmitter signal being associated with a reflection of the transmitter signal from an antenna, the antenna being coupled to a homodyne transceiver;

modifying a second amplitude of the first portion of the transmitter signal such that the second amplitude of the first portion of the transmitter signal is substantially equal to an amplitude of the second portion of the transmitter signal.

31. (New) The method of claim 30, further comprising.

modifying, prior to combining the phase-shifted signal with a second portion of the transmitter signal, an amplitude of the first portion of the transmitter signal such that the amplitude of the first portion of the transmitter signal is substantially equal to an amplitude of the second portion of the transmitter signal.

32. (New) The method of claim 30, further comprising:

prior to combining the phase-shifted signal with a second portion of the transmitter signal, setting a first level associated with a variable attenuator to produce a first signal, the first level being associated with a maximum level of a variable attenuator;

setting a second level associated with the variable attenuator based on a detected signal associated with the first signal to produce a second signal;

setting a first level associated with a phase shifter based on the second signal to produce a third signal, the phase shifter being associated with the phase shifting;

setting a third level associated with the variable attenuator based on a detected signal associated with the third signal to produce a fourth signal; and

setting a second level associated with the phase shifter based on a detected signal associated with the fourth signal.

33. (New) The method of claim 30, further comprising:

splitting the first portion of the transmitter signal from the second portion and a third portion of the transmitter signal; and

transmitting the third portion of the transmitter signal from the antenna, the third portion of the transmitter signal being greater than the first portion of transmitter signal and greater than the second portion of the transmitter signal.